CLAIMS

WHAT IS CLAIMED IS:

1. A method of generating 2^m gray scale levels for a number of rows of pixels to be displayed during a video frame, said method comprising:

dividing said frame into 2^m-1 time slices;

updating each of said rows of pixels during m time slices; and

distributing said row updates among said time slices such that a substantially equal number of said rows of pixels are updated during each of said time slices;

wherein m is an integer greater than zero.

2. The method of claim 1, wherein said step of updating each of said rows of pixels comprises sending update data for each of said pixels in said rows to corresponding elements of a modulator during said m time slices.

3. The method of claim 2, wherein, for each row of said rows of pixels, said update data comprises m different update data sets, said update data sets each being sent to said modulator during one of said m time slices and defining a state of pixels in said row of pixels during 2^x time slices of said frame, wherein x comprises all integers between zero and m-1 and each value of x uniquely corresponds to one of said update data sets.

4. The method of claim 3, wherein said step of distributing said row updates comprises varying the order in which said m update data sets are sent to said modulator for each of said rows of pixels.

5. The method of claim 1, wherein said step of distributing said row updates comprises updating a number of rows of pixels substantially equal to

$m*n/2^m$ during each of said time slices, wherein n is an integer representing said number of rows displayed during said frame.

6. A system for generating 2^m gray scale levels for a number of rows of pixels to be displayed during a video frame, said system comprising a modulator having a number of rows of elements corresponding to said rows of pixels, wherein said modulator is configured to:

divide said frame into 2^m-1 time slices;

update each of said rows of pixels during m time slices; and

distribute said row updates among said time slices such that a substantially equal number of said rows of pixels are updated during each of said time slices;

wherein m is an integer greater than or equal to zero.

7. The system of claim 6, wherein said modulator is further configured to update each of said rows of pixels by controlling corresponding rows of elements during said m time slices in accordance with update data for each of said rows of pixels.

8. The system of claim 7, wherein said modulator is further configured to control said rows of elements by physically adjusting a position of said elements.

9. The system of claim 7, wherein, for each row of said rows of pixels, said update data comprises m different update data sets, said update data sets each being used by said modulator during one of said m time slices to control a corresponding row of elements and defining a state of pixels in said row of pixels during 2^x time slices of said frame, wherein x comprises all integers between zero and m-1 and each value of x uniquely corresponds to one of said update data sets.

10. The system of claim 9, wherein said modulator is further configured to vary the order in which said m update data sets are used to control each of said rows of elements.

11. The system of claim 6, wherein said modulator is further configured to control a number of rows of elements substantially equal to $m*n/2^m$ during each of said time slices, wherein n is an integer representing said number of rows displayed during said frame.

12. The system of claim 6, wherein said elements comprise micromirrors.

13. The system of claim 6, wherein said modulator comprises a liquid crystal on silicon (LCOS) array.

14. The system of claim 6, wherein said modulator comprises a diffractive light device (DLD).

15. A system for generating 2^m gray scale levels for a number of rows of pixels to be displayed during a video frame divided into 2^m-1 time slices, said system comprising:

a modulator having a number of rows of elements corresponding to said rows of pixels and configured to update each of said rows of pixels during m time slices by controlling said rows of elements; and

row select logic configured to select which rows of pixels are to be updated during each of said time slices;

wherein said row select logic is configured to select said rows of pixels to be updated such that a substantially equal number of said rows of pixels are updated during each of said time slices and wherein m is an integer greater than or equal to zero.

16. The system of claim 15, wherein said row select logic is configured to send update data for each of said pixels in said rows of pixels to said modulator during said m time slices.

17. The system of claim 16, wherein, for each row of said rows of pixels, said update data comprises m different update data sets, said update data sets each being sent to said modulator during one of said m time slices and defining a state of pixels in said row of pixels during 2^x time slices of said frame, wherein x comprises all integers between zero and m-1 and each value of x uniquely corresponds to one of said update data sets.

18. The system of claim 17, wherein said modulator is further configured to vary the order in which said m update data sets are used to control each of said rows of elements.

19. The system of claim 15, wherein said modulator controls said rows of elements by physically adjusting a position of said corresponding rows of elements.

20. The system of claim 15, wherein said modulator is configured to control a number of rows of elements substantially equal to $m*n/2^m$ during each of said time slices, wherein n is an integer representing said number of rows displayed during said frame.

21. The system of claim 15, wherein said elements comprise micromirrors.

22. The system of claim 15, wherein said modulator comprises a liquid crystal on silicon (LCOS) array.

23. The system of claim 15, wherein said modulator comprises a diffractive light device (DLD).

24. A system for generating 2^m gray scale levels for a number of rows of pixels to be displayed during a video frame, said system comprising:

means for dividing said frame into 2^m-1 time slices;

means for updating each of said rows of pixels during m time slices; and

means for distributing said row updates among said time slices such that a substantially equal number of said rows of pixels are updated during each of said time slices;

wherein m is an integer greater than or equal to zero.

25. The system of claim 24, wherein said means for updating each of said rows of pixels comprises means for sending update data for each of said pixels in said rows to corresponding elements of a modulator during said m time slices.

26. The system of claim 25, wherein, for each row of said rows of pixels, said update data comprises m different update data sets, said update data sets each being sent to said modulator during one of said m time slices and defining a state of pixels in said row of pixels during 2^x time slices of said frame, wherein x comprises all integers between zero and m-1 and each value of x uniquely corresponds to one of said update data sets.

27. The system of claim 26, wherein said means for distributing said row updates comprises varying the order in which said m update data sets are sent to said modulator for each of said rows of pixels.

28. The system of claim 24, wherein said means for distributing said row updates comprises means for updating a number of rows of pixels

substantially equal to $m*n/2^m$ during each of said time slices, wherein n is an integer representing said number of rows displayed during said frame.